

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A millimeter band signal transmitting/receiving system, comprising:

a stationary transmitter transmitting a millimeter band signal wave;

a propagation path forming portion forming at least one indirect propagation path for propagation of said millimeter band signal wave; and

a stationary receiver including a receive antenna having a main lobe and a side lobe receiving said millimeter band signal wave simultaneously from a plurality of propagation paths including a line of sight propagation path to said transmitter and said at least one indirect propagation path, and receiving said millimeter band signal wave from at least one of said plurality of propagation paths.

2. (Original) The millimeter band signal transmitting/receiving system according to claim 1, wherein said propagation path forming portion includes a reflector arranged to reflect said signal wave transmitted from said transmitter and direct said reflected signal wave to said receiver.

3. (Previously Presented) The millimeter band signal transmitting/receiving system according to claim 2, wherein said reflector is arranged substantially in parallel to a line of sight between said transmitter and said receiver.

4. (Original) The millimeter band signal transmitting/receiving system according to claim 2, wherein said reflector has a thin film including aluminum.

5. (Previously Presented) The millimeter band signal transmitting/receiving system according to claim 2, wherein said reflector has a surface covered by an insulating material.

6. (Previously Presented) The millimeter band signal transmitting/receiving system according to claim 2, wherein said reflector has a surface covered by a transparent insulating material.

7. (Original) The millimeter band signal transmitting/receiving system according to claim 2, wherein a plurality of said reflectors are arranged to form said plurality of propagation paths for propagating said signal waves to said receiver.

8. (Original) The millimeter band signal transmitting/receiving system according to claim 1, wherein said receiver always simultaneously receives said plurality of signal waves from said plurality of propagation paths in a normal state.

9. (Previously Presented) The millimeter band signal transmitting/receiving system according to claim 1, wherein said receiver and said transmitter are provided inside a house, said propagation path includes a structural component defining an internal space of said house and reflecting a signal wave transmitted from said transmitter, and said transmitter is spaced by a prescribed distance from said structural component defining said internal space of said house for transmitting said signal wave at a prescribed transmission angle.

10. (Previously Presented) The millimeter band signal transmitting/receiving system according to claim 9, wherein each of said prescribed distance and said prescribed transmission angle is determined depending on a region for propagation of said plurality of signal waves and a positional relationship between said transmitter and said receiver.

11. (Previously Presented) A millimeter band signal transmitting/receiving system, comprising:
a plurality of stationary transmitters; and
a stationary receiver including a receive antenna having a main lobe and a side lobe arranged to simultaneously receive a plurality of millimeter band signal waves output from said plurality of transmitters,

said plurality of millimeter band signal waves being transmitted from said plurality of transmitters having a same frequency.

12. (Original) The millimeter band signal transmitting/receiving system according to claim 11, wherein each of said plurality of transmitters includes a local oscillator oscillating at a prescribed local oscillator frequency for generating said signal wave at said same frequency.

13. (Original) The millimeter band signal transmitting/receiving system according to claim 12, wherein said local oscillators are in synchronization with each other.

14. (Original) The millimeter band signal transmitting/receiving system according to claim 11, wherein said receiver always simultaneously receives said plurality of signal waves in a normal state.

15. (Previously Presented) A house provided with a millimeter band signal transmitting/receiving system including a structural component defining an internal space and a millimeter band signal transmitting/receiving system, wherein said millimeter band signal transmitting/receiving system comprises:

a stationary transmitter transmitting a millimeter band signal wave;

a propagation path forming portion arranged in said structural component for forming at least one indirect propagation path for propagation of said millimeter band signal wave; and

a stationary receiver including a receive antenna having a main lobe and a side lobe receiving said millimeter band signal wave simultaneously through a plurality of propagation paths including a line of sight propagation path to said transmitter and said at least one indirect propagation path.

16. (Original) The house provided with the millimeter band signal transmitting/receiving system according to claim 15, wherein said propagation path forming portion has a reflector reflecting an output from said transmitter and said reflector is arranged on a surface of said component.

17. (Original) The house provided with the millimeter band signal transmitting/receiving system according to claim 15, wherein said propagation path forming portion has a reflector reflecting an output from said transmitter and said reflector is arranged inside said component.

18. (Previously Presented) A millimeter band signal transmitting/receiving system, comprising:

at least one stationary transmitter transmitting a millimeter band signal through an associated transmit antenna along a plurality of propagation paths of said millimeter band signal formed by said associated transmit antenna including a line of sight propagation path between said associated transmit antenna and a receive antenna;

a stationary receiver receiving the millimeter band signal through said receive antenna having a main lobe and a side lobe,

wherein, in a normal state when said line of sight propagation path is unobstructed, said receiver receives the millimeter band signal through each of the plurality of propagation paths including said line of sight propagation path, and

wherein, in an obstructed state when said line of sight propagation path is obstructed, said receiver receives the millimeter band signal through each of the plurality of propagation paths except said line of sight propagation path.

19. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein at least a portion of said plurality of propagation paths are formed by at least one reflector.

20. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 19, wherein said at least one reflector has a surface arranged substantially parallel to said line of sight propagation path.

21. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 19, wherein said at least one reflector includes two reflectors.

22. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 21, wherein at least one of said plurality of propagation paths of said signal is formed by reflection from each of said two reflectors.

23. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said at least one transmitter is a single transmitter.

24. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said at least one transmitter includes two transmitters and two associated transmit antennas,

wherein each of said two associated transmit antennas provides a separate line of sight propagation path to said receive antenna.

25. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 24, wherein said two transmitters are synchronized with each other.

26. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 25, wherein said two transmitters share a common local oscillator.

27. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said signal is a video signal.

28. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said line of sight propagation path between said associated transmit antenna and the receive antenna is formed in a side lobe of said associated transmit antenna.

29. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said plurality of propagation paths of said signal except said line of sight propagation path are formed in a main lobe of said associated transmit antenna.

30. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein a portion of said plurality of propagation paths are formed by interaction with a structural component of a building.

31. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said receive antenna is a single receive antenna.

32. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 18, wherein said receiver simultaneously receives the signal through each of an unobstructed plurality of propagation paths.

33. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 1, wherein said receiver receives said signal wave through said line of sight propagation path when said line of sight propagation path is not blocked.

34. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 1, wherein said receiver receives said signal wave only through said at least one indirect path when said line of sight propagation path is blocked.

35. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 11, wherein said receiver receives one of said plurality of signal waves through at least one line of sight propagation path between at least one of said plurality of transmitters and said receiver.

36. (Previously Presented) The house provided with a millimeter band signal transmitting/receiving system of claim 15, wherein said receiver receives one of said plurality of signal waves through said line of sight propagation path when said line of sight propagation path is not blocked.

37. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 15, wherein said receiver only receives said plurality of signal waves through said at least one indirect propagation path when said line of sight propagation path is blocked.

38. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 1, wherein said at least one indirect propagation path is formed in a main lobe of a transmit antenna.

39. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 1, wherein said line of sight propagation path is formed in a side lobe of a transmit antenna.

40. (Previously Presented) The millimeter band signal transmitting/receiving system of claim 15, wherein said line of sight propagation path is formed in a side lobe of a transmit antenna.

41. (New) The millimeter band signal transmitting/receiving system according to claim 1, wherein the intensity of the signal wave received from the indirect propagation path is substantially the same as the intensity of the signal wave received from the line of sight propagation path.

42. (New) The millimeter band signal transmitting/receiving system according to claim 41, wherein the intensity of the signal wave received from the indirect propagation path is at least 3dB greater than the intensity of the signal wave received from the line of sight propagation path.

43. (New) The millimeter band signal transmitting/receiving system according to claim 1, wherein said stationary receiver receives a millimeter band signal wave having a carrier to noise ratio of at least 8dB when said line of sight propagation path signal wave is interrupted.

44. (New) The millimeter band signal transmitting/receiving system according to claim 15, wherein the intensity of the signal wave received from the at least one indirect propagation path is substantially the same as the intensity of the signal wave received from the line of sight propagation path.

45. (New) The millimeter band signal transmitting/receiving system according to claim 44, wherein the intensity of the signal wave received from the at least one indirect propagation path is at least 3dB greater than the intensity of the signal wave received from the line of sight propagation path.

46. (New) The millimeter band signal transmitting/receiving system according to claim 15, wherein said stationary receiver receives a millimeter band signal wave having a carrier to noise ratio of at least 8dB when said line of sight propagation path signal wave is interrupted.

47. (New) The millimeter band signal transmitting/receiving system according to claim 1, wherein, when the millimeter band signal wave is received from the plurality of propagation paths, the line of sight propagation path and the at least one propagation path are received substantially without adverse effects caused by multiple paths.

48. (New) The millimeter band signal transmitting/receiving system according to claim 15, wherein, when the millimeter band signal wave is received from the plurality of propagation paths, the line of sight propagation path and the at least one propagation path are received substantially without adverse effects caused by multiple paths.